CASE REPORT: CO-EXISTENCE OF SQUAMOUS CELL CARCINOMA OF MANDIBLE AND NEUROENDOCRINE TUMOR OF INTESTINE

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ABSTRACT

Background: The coexistence of two separate primary cancers in a single patient is a rare clinical event, especially when it involves squamous cell carcinoma (SCC) of the mandible and neuroendocrine tumor (NET) of the small intestine. Because of the differences in tumor biology, development, and management techniques, these instances provide major diagnostic and therapeutic problems.

Case presentation: We present the case of a 55-year-old female with moderately differentiated keratinizing SCC of the right mandible that was treated with surgical resection and adjuvant therapy. She had two recurrences over the course of two years. She later developed gastrointestinal symptoms, and imaging revealed hepatic lesions and a small bowel obstruction. Histopathology after intestinal resection revealed a well-differentiated Grade 2 ileal NET with lymphovascular invasion and nodal metastasis.

Conclusion: This case illustrates the unusual combination of oral cavity SCC and small intestine NET, presenting crucial questions about cancer survivors' surveillance and the possibility of additional primary malignancies with unique histopathologies. Awareness of such relationships is critical for timely diagnosis and effective interdisciplinary therapy.

Keywords: Neuroendocrine tumor, squamous cell carcinoma, Adjuvant chemotherapy, Histopathology

INTRODUCTION

The squamous epithelium of the mandibular area is the site of the common and aggressive mouth cancer known as mandibular squamous cell carcinoma (SCC). It frequently invades the mandible, resulting in discomfort, oedema, or tooth movement. Alcohol, smoke, poor dental hygiene, ill-fitting dentures nutritional deficiencies, and HPV infection are major risk factors.[1,2] On the other hand, NETs are a heterogeneous group of tumors arising from neuroendocrine cells, most commonly found in the gastrointestinal tract and pancreas. These tumors often present with vague symptoms, which can lead to delayed diagnosis and progression [3, 4].

Neuron-endocrine tumors are characterized by their ability to secrete hormones, contributing to a variety of clinical syndromes, and their treatment typically involves a combination of surgery, somatostatin analogs, and targeted therapies [5].

The coexistence of these two distinct tumor types may suggest underlying biological mechanisms or shared etiological factors. Some studies have reported an association between different malignancies, potentially due to genetic predispositions, environmental factors, or systemic conditions [6]. The rarity of documented cases in this regard complicates the understanding of their coexistence and necessitates comprehensive evaluation and multidisciplinary management

A well-differentiated neuroendocrine tumor (NET) of the small intestine and squamous cell carcinoma (SCC) of the oral cavity coexisting is a very uncommon clinical situation with nothing recorded in the literature. This instance involves two physiologically independent neoplasms

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that arise in different organ systems, in contrast to the majority of documented dual malignancies, which feature histologically identical tumors or anatomically related locales.[4] This reveals a significant knowledge gap about possible shared risk factors, carcinogenesis linked to treatment, or genetic predisposition causing similar events. Furthermore, this case is important for increasing clinician awareness and encouraging more research into such uncommon tumor connections because there are no set standards for surveillance of secondary primary malignancies after SCC treatment.

This case study highlights the significance of taking second primary malignancies into account in cancer survivors by presenting the uncommon coexistence of mandibular squamous cell carcinoma and small intestine neuroendocrine tumor. The rarity of documented cases in this regard complicates the understanding of their coexistence and necessitates comprehensive evaluation and multidisciplinary management. Given the distinct clinical presentations and treatment protocols for SCC and NETs, this case report, we aim to evaluate the complexities involved in diagnosing and managing a patient with both malignancies. Further exploration of this case may provide insights into the interplay between these tumors and improve clinical outcomes in future.

CASE PRESENTATION

We describe the case of a female patient, age 55, who had a history of moderately differentiated keratinizing squamous cell carcinoma of the right mandibular region. The patient was treated with surgical resection at first, followed by neck dissection. Over a two-year period, she had two recurrences, which were treated with adjuvant chemotherapy and resection. Later, the patient complained of gastrointestinal problems such as constipation, vomiting, and abdominal pain. Radiological examinations showed several enhancing hepatic lesions and signs of small bowel obstruction. Metastatic lesions were confirmed by a dynamic liver CT scan. A well-differentiated Grade 2 neuroendocrine tumor of the ileum shown in figure 1 and 2, with lymphovascular invasion and metastases to three of the four regional lymph nodes was verified by histopathological analysis of intestinal resection.

TREATMENT

The patient underwent surgical resection of the neuroendocrine tumor in the ileum, as well as the afflicted bowel. Because the tumor had spread to her liver and lymph nodes, she is now receiving monthly injections of a somatostatin analogue (octreotide) to control its growth. She is being monitored on a regular basis for imaging and tumor marker levels in order to guide her continued care.

OUTCOMES AND FOLLOW-UP

The patient is monitored on a regular basis by a multidisciplinary team. She is being monitored every three months with cross-sectional imaging (CT scans of the chest, abdomen, and pelvis and head and neck) to look for disease progression of both malignancies or new metastases. Routine laboratory studies, such as liver function tests and tumor markers are also used to monitor the neuroendocrine tumor.

DISCUSSION

Oral squamous cell carcinoma and small intestine neuroendocrine tumor are uncommon dual primary malignancies.[3] This case emphasizes the need for increased clinical suspicion for second primaries in patients with a history of cancer.

In the head and neck area, multiple studies detail mixed or collision tumors comprising SCC and neuroendocrine components.[1] A mixed neuroendocrine carcinoma and SCC of the maxillary sinus, for example, was described by Franchi et al.[7] They showed immunohistochemical separation and a different TP53

mutational status between the two components, indicating either divergent differentiation or collision genesis. Similar to this, a number of case series examine collision tumors in the sinonasal and laryngeal regions that involve SCC and NEC. The majority of these patients are elderly men who frequently smoke, exhibit aggressive clinical behavior, and have a dismal prognosis.[8] The first instance of a mixed NEC and SCC primary in the colon, accompanied by aggressive regional lymph node metastases and keratin pearl production, was reported by Elkbuli et al. With a median survival of 5–10 months, the prognosis was poor, and the best adjuvant therapy is still up for debate.[9]

An immunosuppressed kidney transplant patient had both NEC and SCC of the skin, according to Yoon et al.[10]. There was no metastasis following removal, and the tumor displayed concurrent SCC in situ and neuroendocrine characteristics unusual for Merkel cell cancer. One year after being diagnosed with a well-differentiated NET in the pancreas and ileum, the patient developed a distinct small-cell neuroendocrine carcinoma of the cervix. This shows separate principal NETs in different locations, indicating potential genetic variability and the necessity of ongoing monitoring.[11]

The case report has a number of advantages. It is a unique addition to medical literature since it emphasizes the uncommon coexistence of two histologically separate primary malignancies: a well-differentiated neuroendocrine tumor of the small intestine and mandibular squamous cell carcinoma. The case's diagnostic complexity, in which gastrointestinal symptoms in a patient with known cancer resulted in the identification of an unrelated second malignancy, emphasizes the significance of taking second primary into account instead of presuming metastasis or disease recurrence. With its emphasis on the necessity of comprehensive evaluation and interdisciplinary management in complex oncology patients, this report also provides doctors from a variety of specialties with substantial educational value. Furthermore, it adds to the paucity of information on these dual cancers and could lead to more investigation into possible underlying mechanisms and long-term cancer survivor surveillance methods.

This case report has some limitations despite its clinical value. It cannot prove a causal link between the two cancers because it is a single-patient observation and is therefore not generalizable. Lack of genetic or molecular research restricts our understanding of potential common etiological variables or underlying tendencies. Furthermore, it was not possible to fully evaluate the neuroendocrine tumor's treatment response or long-term results because of the scant follow-up. Finally, because the NET was discovered after SCC was treated, it is uncertain whether earlier chemotherapy had an effect on the emergence or spread of the second cancer.

This instance highlights several unsolved concerns, including whether past chemotherapy or immunosuppression may lead to the formation of secondary primary malignancies such neuroendocrine tumors, as well as if such dual carcinogenesis is governed by shared genetic or molecular mechanisms. It is also uncertain whether ideal surveillance measures should be implemented in long-term follow-up of head and neck cancer survivors in order to discover unrelated cancers early. Future research should focus on bigger case series or registry-based analysis to identify risk patterns, as well as the possible usefulness of genetic testing or molecular profiling in individuals with several different tumors. Developing evidence-based guidelines for monitoring and managing rare comorbid cancers would improve clinical decision-making and patient outcomes.

IN the present case we have co- exitance of SCC of mandible and NET of small intestine. The following figures showing histopathology of NET of small intestine at various magnification.

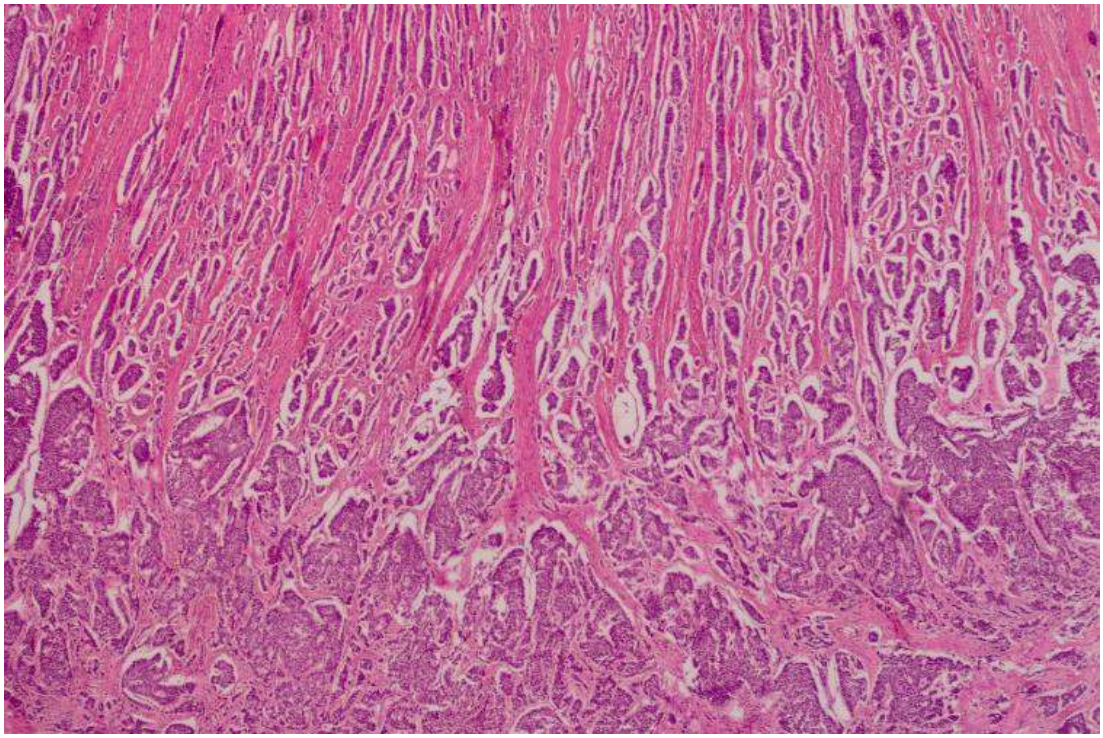

Figure 1: 4x H&E-stained micrograph of NET showing sheets and clusters of cells

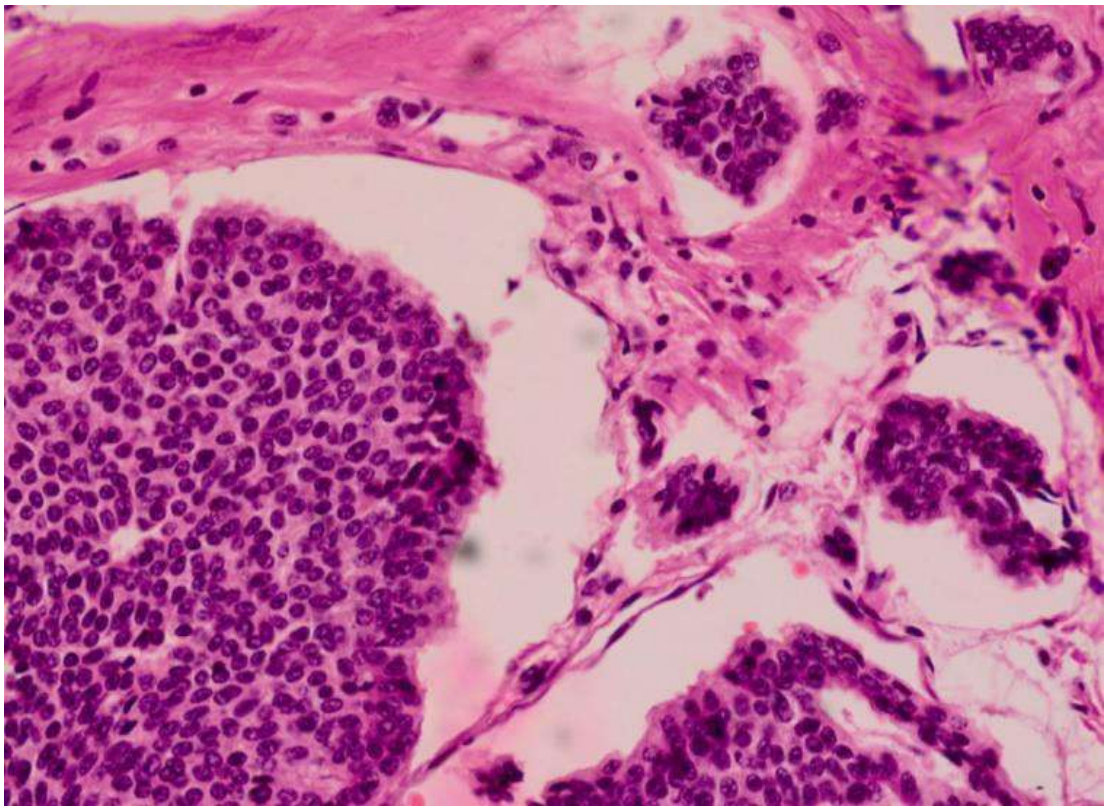

Figure 2: 40x H&E-stained micrograph of NET cluster showing round to oval hyperchromatic nuclei with salt and pepper chromatin and eosinophilic cytoplasm

Learning ***points***

This case report will add to future management and treatment plans for these co-existing neoplasms of different sites by understanding their pathophysiology.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

Patient consent for use of data for publication: The patient presented in the case report herein provided written consent

CONSENT

Written informed consent was obtained from the patient

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